Piketty and the limits of marginal productivity theory

Lars Pålsson Syll [Malmö University, Sweden]

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> The outstanding faults of the economic society in which we live are its failure to provide for full employment and its arbitrary and inequitable distribution of wealth and incomes … I believe that there is social and psychological justification for significant inequalities of income and wealth, but not for such large disparities as exist today (John Maynard Keynes, *General Theory*, 1936).

Introduction

Thomas Piketty's book *Capital in the Twenty-First Century* is in many ways an impressive *magnum opus*. It's a wide-ranging and weighty book, almost 700 pages thick, containing an enormous amount of empirical material on the distribution of income and wealth for almost all developed countries in the world for the last one and a half centuries.

But it does not stop at this massive amount of data. Piketty also theorizes and tries to interpret the trends in the presented historical time series data. One of the more striking – and debated – trends that emerges from the data is a kind of generalized U-shaped Kuznets curve for the shares of the top 10 % and top 1 % of wealth and income, showing extremely high values for the period up to the first world war, and then dropping until the 1970/80s, when they – especially in the top 1% – start to rise sharply.

Contrary to Kuznets's (1955) original hypothesis, there does not seem to be any evidence for the idea that income differences should diminish *pari passu* with economic development. The gains that the increase in productivity has led to, has far from been distributed evenly in society. The optimistic view on there being automatic income and wealth equalizers, commonly held among growth and development economists until a few years ago, has been proven unwarranted.

So, then, why have income differences more or less exploded since the 1980s?

On the illusions of "marginal productivity"

In my own country, Sweden, it is pretty obvious that we need to weigh in institutional, political and social forces to explain the extraordinary increase in the functional income inequality distribution. Not the least changes in the wage negotiation system, weakened trade unions, the new "independent" role of the central bank (Riksbanken) and it's single-mindedly rigid focus on price stability, a new tax-system, globalization, financialization of the economy, neoliberal "Thatcher-Reagan" deregulations of markets, etc., etc., have profoundly influenced wealth and income distribution. What was once an egalitarian Swedish model, has during the last three decades been reduced to something more akin to the rest of continental Europe, with sharply increased income differences (especially incomes from owning capital and

trading financial assets). It is difficult to imagine a sustainable explanation for the falling wages share since the 1980s – not only in Sweden, but in virtually all developed countries – that does not to a large part take account of the fight over distribution between classes in an ongoing restructuring of our society and its underlying fundamental socio-economic relationships.

Mainstream economics textbooks – Mankiw and Taylor (2011) is a typical example – usually refer to the interrelationship between technological development and education as the main causal force behind increased inequality. If the educational system (supply) develops at the same pace as technology (demand), there should be no increase, *ceteris paribus*, in the ratio between high-income (highly educated) groups and low-income (low education) groups. In the race between technology and education, the proliferation of skilled-biased technological change has, however, allegedly increased the premium for the highly educated group.

Another prominent explanation is that globalization – in accordance with Ricardo's theory of comparative advantage and the Wicksell-Heckscher-Ohlin-Stolper-Samuelson factor price theory – has benefited capital in the advanced countries and labour in the developing countries. The problem with these theories are *inter alia* that they *explicitly* assume full employment and international immobility of the factors of production. Globalization means more than anything else that capital and labour have to a large extent become mobile over country borders. These mainstream trade theories are *a fortiori* really not applicable in the world of today, and they are certainly not able to explain the international trade pattern that has developed during the last decades. Although it seems as though capital in the developed countries has benefited from globalization, it is difficult to detect a similar positive effect on workers in the developing countries (Altvater and Mahnkopf, 2002).

As Piketty shows, there are, however, also some other quite obvious problems with these kinds of inequality explanations. The impressively vast databank of information on income and inequality that Piketty has created – especially *The World Top Incomes Database* – shows, as noted, that the increase in incomes has been concentrated especially in the top 1%. If education was the main reason behind the increasing income gap, one would expect a much broader group of people in the upper echelons of the distribution taking part of this increase. It is, as recent research has shown (den Haan, 2011), dubious, to say the least, to try to explain, for example, the high wages in the finance sector with a marginal productivity argument. High-end wages seem to be more a result of pure luck or membership of the same "club" as those who decide on the wages and bonuses, than of "marginal productivity".

Mainstream economics, with its technologically determined marginal productivity theory, seems to be difficult to reconcile with reality. But walked-out Harvard economist and George Bush advisor, Greg Mankiw (2011), does not want to give up on his preferred theory that easily:

> Even if the income gains are in the top 1 percent, why does that imply that the right story is not about education?
>
> If indeed a year of schooling guaranteed you precisely a 10 percent increase in earnings, then there is no way increasing education by a few years could move you from the middle class to the top 1 percent.

> But it may be better to think of the return to education as stochastic. Education not only increases the average income a person will earn, but it also changes the entire distribution of possible life outcomes. It does not guarantee that a person will end up in the top 1 percent, but it increases the likelihood. I have not seen any data on this, but I am willing to bet that the top 1 percent are more educated than the average American; while their education did not ensure their economic success, it played a role.

A couple of years later Mankiw (2014) makes a new effort at explaining and defending income inequalities, this time invoking Adam Smith's invisible hand:

> [B]y delivering extraordinary performances in hit films, top stars may do more than entertain millions of moviegoers and make themselves rich in the process. They may also contribute many millions in federal taxes, and other millions in state taxes. And those millions help fund schools, police departments and national defense for the rest of us ...
>
> [T]he richest 1 percent aren't motivated by an altruistic desire to advance the public good. But, in most cases, that is precisely their effect.

Mankiw's card-carrying neoclassical apologetics recalls John Bates Clark's (1899) argument that marginal productivity results in an ethically just distribution. But that is not something – even if it were true – we could confirm empirically, since it is impossible *realiter* to separate out what is the marginal contribution of any factor of production. The hypothetical *ceteris paribus* addition of only one factor in a production process is often heard of in textbooks, but never seen in reality.

When reading Mankiw on the "just desert" of the 0.1 %, one gets a strong feeling that he is ultimately trying to argue that a market economy is some kind of moral free zone where, if left undisturbed, people get what they "deserve". To most social scientists that probably smacks more of being an evasive action trying to explain away a very disturbing structural "regime shift" that has taken place in our societies. A shift that has very little to do with "stochastic returns to education." Those were in place also 30 or 40 years ago. At that time they meant that perhaps a top corporate manager earned 10–20 times more than "ordinary" people earned. Today it means that they earn 100–200 times more than "ordinary" people earn. A question of education? Hardly. It is probably more a question of greed and a lost sense of a common project of building a sustainable society. Or as the always eminently quotable Robert Solow (2014a) puts it:

> Who could be against allowing people their 'just deserts?' But there is that matter of what is 'just.' Most serious ethical thinkers distinguish between deservingness and happenstance. Deservingness has to be rigorously earned. You do not 'deserve' that part of your income that comes from your parents' wealth or connections or, for that matter, their DNA. You may be born just plain gorgeous or smart or tall, and those characteristics add to the market value of your marginal product, but not to your deserts. It may be impractical to separate effort from happenstance numerically, but that is no reason to confound them, especially when you are thinking about taxation and redistribution. That is why we want to temper the wind to the shorn lamb, and let it blow on the sable coat.

Since the race between technology and education does not seem to explain the new growing income gap – and even if technological change has become more and more capital augmenting, it is also quite clear that not only the wages of low-skilled workers have fallen, but also the overall wage share – mainstream economists increasingly refer to "meritocratic extremism," "winners-take-all markets" (Frank and Cook, 1995) and "super star-theories" (Rosen, 1981) for explanation. But this is also – as noted by Piketty (2014, p. 334) – highly questionable:

> The most convincing proof of the failure of corporate governance and of the absence of a rational productivity justification for extremely high executive pay is that when we collect data about individual firms … it is very difficult to explain the observed variations in terms of firm performance. If we look at various performance indicators, such as sales growth, profits, and so on, we can break down the observed variance as a sum of other variances: variance due to causes external to the firm … plus other "nonexternal" variances. Only the latter can be significantly affected by the decisions of the firm's managers. If executive pay were determined by marginal productivity, one would expect its variance to have little to do with external variances and to depend solely or primarily on nonexternal variances. In fact, we observe just the opposite.

Fans may want to pay extra to watch top-ranked athletes or movie stars performing on television and film, but corporate managers are hardly the stuff that people's dreams are made of – and they seldom appear on television and in the movie theaters.

Everyone may prefer to employ the best corporate manager there is, but a corporate manager, unlike a movie star, can only provide his services to a limited number of customers. From the perspective of "super-star theories," a good corporate manager should only earn marginally better than an average corporate manager. The average earnings of corporate managers of the 50 biggest Swedish companies today, is equivalent to the wages of 46 blue-collar workers (Bergström and Järliden, 2013, p. 10). Executive pay packages at that outlandish level is, as noted by Solow (2014b, p. 9):

> usually determined in a cozy way by boards of directors and compensation committees made up of people very like the executives they are paying.

It is indeed difficult to see the takeoff of the top executives as anything else but a reward for being a member of the same illustrious club. That they should be equivalent to indispensable and fair productive contributions – marginal products – is straining credulity too far. That so many corporate managers and top executives make fantastic earnings today, is strong evidence the theory is patently wrong and basically functions as a legitimizing device of indefensible and growing inequalities.

Having read Piketty (2014, p. 332) no one ought to doubt that the idea that capitalism is an expression of impartial market forces of supply and demand, bears but little resemblance to actual reality:

> It is only reasonable to assume that people in a position to set their own salaries have a natural incentive to treat themselves generously, or at the very least to be rather optimistic in gauging their marginal productivity.

But although I agree with Piketty on the obvious – at least to anyone not equipped with ideological blinders – insufficiency and limitation of neoclassical marginal productivity theory to explain the growth of top 1 % incomes, I strongly disagree with his rather unwarranted belief that when it comes to more ordinary wealth and income, the marginal productivity theory somehow should still be considered applicable. It is not.

Wealth and income distribution, both individual and functional, in a market society is to an overwhelmingly high degree influenced by institutionalized political and economic norms and power relations, things that have relatively little to do with marginal productivity in complete and profit-maximizing competitive market models – not to mention how extremely difficult, if not outright impossible it is to *empirically* disentangle and measure different individuals' contributions in the typical team work production that characterize modern societies; or, especially when it comes to "capital," what it is supposed to mean and how to measure it. Remunerations, *a fortiori*, do not necessarily correspond to any marginal product of different factors of production – or to "compensating differentials" due to non-monetary characteristics of different jobs, natural ability, effort or chance). As Amartya Sen (1982) writes:

> The personal production view is difficult to sustain in cases of interdependent production … i.e., in almost all the usual cases … A common method of attribution is according to "marginal product" … This method of accounting is internally consistent only under some special assumptions, and the actual earning rates of resource owners will equal the corresponding "marginal products" only under some further special assumptions. But even when all these assumptions have been made … marginal product accounting, when consistent, is useful for deciding how to use additional resources … but it does not "show" which resource has "produced" how much … The alleged fact is, thus, a fiction, and while it might appear to be a convenient fiction, it is more convenient for some than for others ...
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> The personal production view … confounds the marginal impact with total contribution, glosses over the issues of relative prices, and equates "being more productive" with "owning more productive resources" … An Indian barber or circus performer may not be producing any less than a British barber or circus performer — just the opposite if I am any judge — but will certainly earn a great deal less …

Put simply – highly paid workers and corporate managers are not always highly productive workers and corporate managers, and less highly paid workers and corporate managers are not always less productive. History has over and over again disconfirmed the close connection between productivity and remuneration postulated in mainstream income distribution theory.

Neoclassical marginal productivity theory is a collapsed theory from a both historical and – as shown already by Sraffa in the 1920s, and in the Cambridge capital controversy in the 1960s and 1970s – theoretical point of view. But, unfortunately, Piketty trivializes the concept of capital and the Cambridge controversy over it. As in every mainstream textbook on growth theory and as with most neoclassical economists, Piketty just chooses to turn a blind eye to it and pretend it is much fuss about nothing. But they are wrong.

As Joan Robinson (1953, p. 81) writes:

> The production function has been a powerful instrument of miseducation. The student of economic theory is taught to write Q = f (L, K) where L is a quantity of labor, K a quantity of capital and Q a rate of output of commodities. He is instructed to assume all workers alike, and to measure L in man-hours of labor; he is told something about the index-number problem in choosing a unit of output; and then he is hurried on to the next question, in the hope that he will forget to ask in what units K is measured. Before he ever does ask, he has become a professor, and so sloppy habits of thought are handed on from one generation to the next.

And as Edwin Burmeister (2000, p. 312) admitted already fifteen years ago:

> It is important, for the record, to recognize that key participants in the debate openly admitted their mistakes. Samuelson's seventh edition of Economics was purged of errors. Levhari and Samuelson published a paper which began, 'We wish to make it clear for the record that the nonreswitching theorem associated with us is definitely false' … Leland Yeager and I jointly published a note acknowledging his earlier error and attempting to resolve the conflict between our theoretical perspectives … However, the damage had been done, and Cambridge, UK, 'declared victory': Levhari was wrong, Samuelson was wrong, Solow was wrong, MIT was wrong and therefore neoclassical economics was wrong. As a result there are some groups of economists who have abandoned neoclassical economics for their own refinements of classical economics. In the United States, on the other hand, mainstream economics goes on as if the controversy had never occurred. Macroeconomics textbooks discuss 'capital' as if it were a well-defined concept — which it is not, except in a very special one-capital-good world (or under other unrealistically restrictive conditions). The problems of heterogeneous capital goods have also been ignored in the 'rational expectations revolution' and in virtually all econometric work.

In a way these deficiencies are typical of Piketty's book – while presenting and analyzing an impressive amount of empirical data, the theory upon which he ultimately grounds his analysis, does not live up to the high standard set by the empirical material.

Piketty (2014, p. 333) is obviously, at least when discussing the remuneration of the top 1 %, aware of some of the limitations of neoclassical marginal productivity theory, but nonetheless, rather unwarranted and without much argumentation, holds it to be applicable to the more ordinary levels of wages and incomes:

> To be clear, I am not claiming that all wage inequality is determined by social norms of fair remuneration. As noted, the theory of marginal productivity and of the race between technology and education offers a plausible explanation of the long-run evolution of the wage distribution, at least up to a certain level of pay and within a certain degree of precision. Technology and skills set limits within which most wages must be fixed.

But, of course, once admitting that the top 1% can side-step marginal productivity concerns, the theory is seriously undermined since there is no consistent reason presented to exclude

other segments of income earners from having the same degree of freedom. And as Hicks (1932) has already pointed out – as long as we only have rather uncertain measures of the elasticity of demand, the marginal productivity theory cannot, anyway, say how the relative shares of incomes will develop.

Conclusion

In an ongoing trend towards increasing inequality in both developing and emerging countries all over the world, wage shares have fallen substantially – and the growth in real wages has lagged far behind the growth in productivity – over the past three decades.

As already argued by Karl Marx 150 years ago, the division between profits and wages is ultimately determined by the struggle between classes – something fundamentally different to hypothesized "marginal products" in neoclassical Cobb-Douglas or CES varieties of neoclassical production functions.

Compared to Marx's *Capital*, the one written by Piketty has a much more fragile foundation when it comes to theory. Where Piketty is concentrating on classifying different income and wealth categories, Marx was focusing on the facedown between different classes, struggling to appropriate as large a portion of the societal net product as possible.

Piketty's painstaking empirical research is, doubtless, very impressive, but his theorizing – although occasionally critical of orthodox economics and giving a rather dismal view of present-day and future capitalism as a rich-get-richer inequality society – is to a large extent shackled by neoclassical economic theory, something that unfortunately makes some of his more central theoretical analyses rather unfruitful from the perspective of realism and relevance.

A society where we allow the inequality of incomes and wealth to increase without bounds, sooner or later implodes. A society that promotes unfettered selfishness as the one and only virtue, erodes the cement that keeps us together, and in the end we are only left with people dipped in the ice cold water of egoism and greed.

If reading Piketty's *magnum opus* get people thinking about these dangerous trends in modern capitalism, it may – in spite of its theoretical limitations – have a huge positive political impact. And that is not so bad. For, as the author of the original *Capital* once famously wrote:

> The philosophers have only interpreted the world, in various ways. The point, however, is to change it.

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Author contact: lars.palsson-syll@mah.se

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